

REMARKS

Claims 16 and 29 to 32 were rejected under 35 U.S.C. 102(b) as being anticipated by Taub (U.S. Patent No. 1,727,621). Claims 17 to 20, 22, 23, 25, 26 and 28 were rejected under 35 U.S.C. 103(a) as being unpatentable over Taub in view of Cummings (U.S. Patent No. 2,439,240).

Claims 16, 17 and 26 are hereby amended to more particularly and distinctly claim the invention. New claims 33 and 34 are hereby added by this response. Support is found for new claims 33 and 34 in the specification at paragraphs [0025] and [0026] and Fig. 1A, for example.

Reconsideration of the application based on the following remarks is respectfully requested.

35 U.S.C. 102(b) Rejections

Claims 16 and 29 to 32 were rejected under 35 U.S.C. 102(b) as being anticipated by Taub (U.S. Patent No. 1,727,621).

Taub discloses a poppet valve that includes a stem 48 having a reduced portion 50 which is threaded to receive a valve head 52. (Taub, page 2, lines 15 to 20; Fig. 3). An end of valve head 52 is peened over at 54 for fixing the head 52 securely to the stem. (Id.). "The head 52 is formed on its stem-connected side with an annular ridge 56 having a frusto-conical outer surface fitting within the larger end of a tapered shroud 58, the opposite end of the shroud fitting the reduced portion 50 of the valve stem and abutting against the shoulder 51." (Id., page 2, lines 26 to 32; Fig. 3).

Claim 16, as amended, recites "[a] lightweight valve comprising:

a valve stem;

a hollow valve cone; and

a valve disk, the valve cone and the valve disk together forming a hollow space, the valve disk having a gripping receiver for gripping an end portion of the valve stem;

wherein the gripping receiver is formed by reinforcing ribs on the valve disk."

It is respectfully submitted that Taub does not disclose the requirement of claim 16 of “the valve disk having a gripping receiver for gripping an end portion of the valve stem; wherein the gripping receiver is formed by reinforcing ribs on the valve disk.” Peened portion 54 of stem 48 in Taub, which the Examiner alleges corresponds to the “gripping receiver” of claim 16, in no way grips stem 48 and is not formed by reinforcing ribs on valve head 52. Because Taub does not disclose the “gripping receiver” of claim 16 as amended, Taub does not teach each and every element of claim 16. Thus, Taub does not anticipate claim 16.

Based on the foregoing, withdrawal of the rejection under 35 U.S.C. 102(b) of claim 16, and claims 29 and 30 depending therefrom, is respectfully requested.

Claim 31 recites “[a] method for manufacturing a lightweight valve comprising:
producing a first one-piece component forming a valve disk and a gripping receiver by casting, forming and/or powder metallurgy method;
producing a second one-piece component forming a valve stem, the gripping receiver being for the valve stem;
producing a third component forming a hollow valve cone;
connecting the first and second components by a material, non-positive and/or positive connection, and
pushing the third component onto the second component and connecting the third component to the first and second components by a material, non-positive and/or positive connection.”

It is respectfully submitted that the Office Action is in clear error for failing to address the specific language of claim 31. For example, the Office Action does not address the step of claim 31 of “producing a *first one-piece component* forming a valve disk and a gripping receiver by casting, forming and/or powder metallurgy method.” Valve head 52 of Taub, which the Examiner alleges corresponds to the “valve disk” of claim 31, and peened portion 54 of Taub, which the Examiner alleges corresponds to the “gripping receiver” of claim 31, are no way a “*first one-piece component*” as required by claim 31. Because Taub does not disclose this step of claim 31, Taub does not teach each and every element of claim 31. Thus, Taub does not

anticipate claim 31.

Based on the foregoing, withdrawal of the rejection under 35 U.S.C. 102(b) of claim 31, and claim 32 depending therefrom, is respectfully requested.

35 U.S.C. 103(a) Rejections

Claims 17 to 20, 22, 23, 25, 26 and 28 were rejected under 35 U.S.C. 103(a) as being unpatentable over Taub in view of Cummings (U.S. Patent No. 2,439,240).

Taub is described above. Cummings discloses a hollow poppet valve that includes a hollow body portion 10 having a hollow stem 10a and a valve neck 10b. (Cummings, col. 3, lines 9 to 14). Valve neck 10b includes a rim end 10e that receives a head-dome 11. (Id., col. 3, lines 17 to 21). "The neck 10b of the valve body 10 has integral ribs or fins 13 extending radially inward therefrom and spaced apart 120° as shown in Figure 2. The three ribs or fins 13 thus provided terminate in spaced relation from each other at their inner ends as shown in Figure 2 to provide an opening 14 continuing the bore of the hollow stem 10a up to the head dome 11 and thereby simplifying the insertion of tools for finishing the bore of the stem 10a. These fins 13 extend down into the throat of the valve as illustrated at 13a in Figure 1 and extend up to top edges 13b having the same contour as the bottom face of the head dome 11 and bottoming this bottom face of the head dome." (Id., col. 3, lines 28 to 42).

Claims 17 to 20, 22, 23, 25, 26 and 28 depend from claim 16. It is respectfully submitted that neither Taub nor Cummings, alone or in combination, discloses the requirement of claim 16 of "the valve disk having a gripping receiver for gripping an end portion of the valve stem." Cummings in no way cures this deficiency of claim 16 because, regardless of the embodiment, ribs 13, 18, 23 or 28 of Cummings in no way form a gripper receiver and in no way grip hollow stem 10a of Cummings. Thus, because neither reference discloses a gripper receiver for gripping an end portion of a valve stem, no possible combination of Taub and Cumming teaches or makes obvious each and every element of claim 16, or any claim depending from claim 16.

Based on the foregoing, withdrawal of the rejection under 35 U.S.C. 103(a) of claims 17 to 20, 22, 23, 25, 26 and 28 is respectfully requested.

CONCLUSION

The present application is respectfully submitted as being in condition for allowance and applicants respectfully request such action.

Respectfully submitted,
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